REMARKS

Claims 1-15 are currently pending in the application. Claim 1 is an independent claim and claims 2-15 depend there from. The Applicant respectfully requests that the application be reconsidered in view of the following remarks.

Traversal Of Claim Rejections - 35 U.S.C. § 103(a)

In paragraph 2 on page 2 of the Final Office Action, independent claim 1 and dependent claims 8-9, 12, and 14-15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Puar et al. U.S. Patent 6,356,497 (Puar) in view of McCormack et al. U.S. Patent 6,395,591 (McCormack). Applicant respectfully traverses the rejections for at least the following reasons.

McCormack is different from Applicant's amended independent claim 1. McCormack at least fails to disclose a "shielding layer" as set forth in Applicant's claim 1. McCormack discloses "an integrated circuit fabrication process us[ing] a selective substrate implant process to provide a substrate structure which can provide decoupling of power supply noise, such as ground noise, between noisy and noise sensitive circuits and also immunity against latchup and electrostatic discharge." (Column 2, Lines 46-50) (Emphasis added). "The selective substrate implant process is used to formed [sic] a heavily doped p++ region 14." (Column 2, Lines 64-66) (Emphasis added). "[T]he heavily doped p++ region 14 are [sic] selectively placed in p-type substrate 10 to achieve either the purpose of enhancing latchup suppression or decoupling power supply noise or both." (Column 3, Lines 17-20). The selective substrate implant process disclosed in McCormack, "can be used to form heavily doped regions underneath P-wells in which input/output circuits are built." (Column 6, Lines 16-17) (Emphasis added). "Thus, the p++ regions serve the purpose of improving the latchup suppression ability of the input, output or I/O circuits." (Column 6, Lines 24-26) (Emphasis added). McCormack further states that "the actual heavily doped regions are not formed as a contagious [sic] layer underneath the shaded areas as is depicted in FIGS. 4 and 5. Rather, one having ordinary skilled in the art

would understand that the heavily doped regions are formed only in areas where P-wells are to be built." (Column 6, Lines 40-44) (Emphasis added).

The Examiner states in Paragraph 5 on Page 6 of the Final Office Action that "McCormack clearly teaches that the p type layer 12, which has higher doping than the lightly doped (p-) substrate 10, would lower the resistance of substrate to enhance latchup suppression and would isolate the transistor well layers from the high resistant substrate to provide immunity against parasitic substrate effects." This assertion is completely erroneous. First, nowhere in the McCormack reference does it state that the p type layer 12 has higher doping than the lightly doped (p-) substrate 10. Rather, McCormack suggests that the doping for both the P-type substrate 10 and the p-type epi layer 12 are in the same 14-28 ohm-cm range. (Compare Column 5, Line 47 with Column 6, Lines 2-3). Second, nowhere in the McCormack reference is there any claim or inference that the p type epitaxy layer 12 functions as a "shielding layer." McCormack credits the enhanced circuit performance while offering protections against parasitic effects to the heavily doped p++ region 14, not to the p type epitaxial layer 12. McCormack discloses a selective substrate implant process that "is capable of enhancing the circuit performance while offering protections against parasitic effects" (Column 2, Lines 57-59) by forming "a heavily doped p++ region 14," (Column 2, Lines 65-66) that is "formed only in areas where P-wells are to be built." (Column 6, Lines 43-44).

Even if the heavily doped p++ region 14 in McCormack functions as a "shielding" region, the heavily doped p++ region 14 in McCormack can not function as a shielding layer since it only covers a portion of the substrate layer. In fact, not only does McCormack fail to disclose a "shielding layer," McCormack actually teaches away from a "shielding layer." In Column 6, Lines 40-44, McCormack states that "one having ordinary skilled in the art would understand that the heavily doped regions are formed only in areas where P-wells are to be built." (Emphasis added).

For at least the reasons set forth above, Applicant respectfully asserts that claim 1 is allowable over McCormack. Applicant requests that the rejection of claim 1 be withdrawn.

Because dependent claims 2-3, 6-13, and 16-17 depend, directly or indirectly, from independent claim 1, and because claim 1 is allowable over the proposed reference, Applicant asserts that rejections of dependent claims 2-3, 6-13, and 16-17 are now moot. Applicant asserts that claims 2-3, 6-13, and 16-17 are also allowable over the cited reference and requests that the rejections of claims 2-3, 6-13, and 16-17 be withdrawn.

In paragraph 3 on page 3 of the Final Office Action, independent claim 1 and dependent claims 2-10, 12 and 14-15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over McCormack in view of Puar. Applicant respectfully traverses the rejections for at least the following reasons.

McCormack, even if combined with Puar, is different from Applicant's independent claim 1. The proposed combination of McCormack and Puar at least fails to disclose a "shielding layer" as set forth in Applicant's claim 1. McCormack teaches (as discussed above) a selective substrate implant process that "is capable of enhancing the circuit performance while offering protections against parasitic effects" (Column 2, Lines 57-59) by forming "a heavily doped p++ region 14," (Column 2, Lines 65-66) that is "formed only in areas where P-wells are to be built." (Column 6, Lines 43-44). Puar is silent regarding a "shielding layer" as set forth in Applicant's claim 1. Thus, the combined references do not teach each and every limitation as set forth in Applicant's claim 1.

For at least the reasons set forth above, Applicant respectfully asserts that claim 1 is allowable over the proposed combination of McCormack and Puar. Applicant requests that the rejection of claim 1 be withdrawn.

Because dependent claims 2-10, 12, and 14-15 depend, directly or indirectly, from independent claim 1, and because claim 1 is allowable over the proposed combination of references, Applicant asserts that rejections of dependent claims 2-10, 12, and 14-15 are now moot. Applicant asserts that claims 2-10, 12, and 14-15 are also allowable over the cited references and requests that the rejections of claims 2-10, 12, and 14-15 be withdrawn.

In paragraph 4 on page 4 of the Office Action, dependent claims 11 and 13 were rejected under 35 U.S.C. § 103(a) as being unpatentable over McCormack and Puar in view of Wei U.S.

Patent 6,403,992. Applicant respectfully traverses the rejections for at least the following reasons.

Because dependent claims 11 and 13 depend, directly or indirectly, from independent claim 1, and because claim 1 is allowable over the proposed references, Applicant asserts that rejections of dependent claims 11 and 13 are now moot. Applicant asserts that claims 11 and 13 are also allowable over the cited reference and requests that the rejections of claims 11 and 13 be withdrawn.

CONCLUSION

Based on at least the foregoing, Applicant believes that claims 1-20 are in condition for allowance. The Examiner is kindly invited to contact the undersigned at the telephone number listed below to discuss the rejection of the claims and passing such claims to allowance prior to taking any other action on the merits.

The Commissioner is hereby authorized to charge additional fee(s) or credit overpayment(s) to the deposit account of McAndrews, Held & Malloy, Account No. 13-0017.

A Notice of Allowance is courteously solicited.

Dated: April 24, 2006

Respectfully submitted,

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